REMARKS

This application has been reviewed in light of the Office Action dated September 30, 2003. Claims 31-51, 55-62, and 65-69 are pending in this application. Claims 52-54, 63, and 64 have been canceled, without prejudice or disclaimer of the subject matter presented therein. Claims 31, 35-38, 40, 44-47, 51, 55, 58, and 59 have been amended to define more clearly what Applicants regard as their invention. Applicants note that the changes to Claims 31, 35-38, 40, 44-47, 51, 55, 58, and 59 affect matters of form only and do not, in any way, narrow the scope of any of these claims. Claims 68 and 69 have been added to provide Applicants with a more complete scope of protection. Claims 31, 47, 51, and 55 are in independent form. Favorable reconsideration is requested.

First, Applicants gratefully acknowledge the indication that Claims 32, 34, 35, 52, 54, 56, and 58 include allowable subject matter and would be allowable if rewritten in proper independent form. Claims 32, 34, 35, 56, and 58 have not been so rewritten at this time because, for the reasons given below, their base claims are believed to be allowable.

The Office Action objected to the specification, asserting that reference numeral "1441" be changed to --441--. Applicants have amended the specification, believe that the objection has been remedied, and respectfully request its withdrawal.

The Office Action objected to the drawings, asserting that reference numeral "30" in Figure 2 be changed to reference numeral --305--. Applicants enclose hereto a Letter Transmitting Corrected Drawing, which amends Figure 2 accordingly. Applicants believe that the objection to the drawings has been remedied and respectfully request its withdrawal.

B

The Office Action rejected Claims 31, 36, 40-43, 47-51, 53, 55, 57, 59-62, and 65-67 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,315,828 B1 (Barbour et al.) in view of U.S. Patent No. 4,811,293 A (Knothe et al.); Claims 33, 39, and 45 as being unpatentable over Barbour et al. in view of Knothe et al. and U.S. Patent No. 5,363,134 A (Barbehenn et al.); Claims 37, 44, and 63 as being unpatentable over Barbour et al. in view of Knothe et al. and U.S. Patent No. 6,168,251 B1 (Imanaka et al.); and Claims 38, 46, and 64 as being unpatentable over Barbour et al. in view of Knothe et al. and National Semiconductor, Corp., 1981 Logic Databook, 1981, pp. 6-98-101. The cancellation of Claims 52-54, 63, and 64 renders their rejection moot. Applicants respectfully traverse the rejections relating to independent Claims 31, 47, 51, and 55.

Applicants enclose hereto sworn translations of Japanese applications 10-306179 and 10-306182, both of which were filed October 27, 1998, from which the present application claims priority. Applicants note that Barbour et al. has an effective date of February 19, 1999, which is later than the filing date of October 27, 1998 for Japanese applications 10-306179 and 10-306182. Thus, Applicants submit that Barbour et al. is not prior art and therefore respectfully request withdrawal of the rejections based on Barbour et al.

Applicants also enclose hereto a copy of the reference JP 08-177732, as requested by the Examiner at page 6 of the Office Action.

A review of the other art of record including Knothe et al., Barbehenn et al., Imanaka et al., and National Semiconductor, Corp., 1981 Logic Databook, 1981, pp. 6-98-101 has failed to reveal anything which, in Applicants' opinion, would render the subject

B

matter of independent 31, 47, 51, and 55 unpatentable. Thus, Applicants submit that the independent claims are therefore believed to be patentable over the art of record.

The other claims in this application, including new Claims 68 and 69, are each dependent from one or another of the independent claims mentioned above and are therefore believed to be patentable as well. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

Peter C. Thurlow

Attorney for Applicants

Registration No. 47,138

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
NY_323522

B

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO SPECIFICATION

The paragraph starting at page 23, line 10 has been amended as follows:

Also in the foregoing embodiment, the ink jet printer 300 causes the fuse logic circuit 442 to only execute the readout of the data stored in the fuse RPM [1441] 441, but it is also possible to execute the data writing or to selectively execute the data readout and the data writing.

NY_MAIN 323922 v 1

B

VERSION WITH MARKINGS SHOWING CHANGES TO CLAIMS as of 1/30/03

31. (Amended) A head substrate of a printing head capable of being detachably mounted on a printer main body, comprising:

plural external connection terminals for externally entering various signals and a driving electric power;

recording [execution] means for [executing a] recording [operation] according to the various signals [and the driving electric power externally entered into said external connection terminals];

data memory means for executing data writing and data readout;

memory access means for executing the data writing into said data memory means in response to the various signals and the driving electric power [externally entered into said external connection terminals] and the data readout corresponding to the various signals; and

writing inhibition means for permanently disabling the data writing into said data memory means by said memory access means.

35. (Amended) A head substrate according to [any of Claims 31 to 34] Claim 31, wherein:

said memory access means writes data of plural kinds in succession in said data memory means; and

B

said writing inhibition means individually disables data overwriting for the data of the plural kinds written in succession in said data memory means by said memory access means.

36. (Amended) A head substrate according to [any of Claims 31 to 34] Claim 31, wherein:

said plural external connection terminals externally receive, as the various signals, a binary logic signal corresponding to whether or not to execute the recording, a recording image signal and a clock signal;

said recording execution means is adapted for executing a recording operation by externally receiving the recording image signal and the clock signal when said binary logic signal externally entered from said external connection terminals is in a first state; and

said memory access means is adapted for executing at least either of data writing into or data readout from said data memory means at a timing corresponding to the clock signal, when said binary logic signal externally entered into said external connection terminal is in a second state.

37. (Amended) A head substrate according to [any of Claims 31 to 34] Claim 31, wherein:

B

said recording [execution] means is adapted for [executing a] recording [operation] based on the recording image signal serially entered into a specified one of said external connection terminals; and

said memory access means is adapted for writing data, serially entered from said specified one of said external connection terminals, into said data memory means, and serially outputting the data read from said data memory means to said specified one of said external connection terminals.

38. (Amended) A head substrate according to [any of Claims 31 to 34] Claim 31, wherein:

said recording [execution] means is adapted for [executing a] recording [operation] based on the recording image signal parallel entered into specified ones of said external connection terminals; and

said memory access means is adapted for writing data, parallel entered from said specified plurality of said external connection terminals that parallel receive the recording image signal, into said data memory means, and for serially outputting the data, read from said data memory means, to said specified plurality of said external connection terminals that parallel receive the recording image signal.

40. (Amended) A printing head capable of being detachably mounted in a printer main body, comprising a head substrate according to [any of Claims 31 to 34] Claim 31.

B

44. (Amended) A printing head capable of being detachably mounted in a printer main body, comprising a head substrate according to Claim 36.

45. (Amended) A printing head capable of being detachably mounted in a printer main body, comprising a head substrate according to Claim 37.

46. (Amended) A printing head capable of being detachably mounted in a printer main body, comprising a head substrate according to Claim 38.

47. (Amended) A printing head capable of being detachably mounted on a printer main body, comprising:

plural external connection terminals for externally entering various signals and a driving electric power;

recording [execution] means for [executing a] recording [operation] according to the various signals [and the driving electric power externally entered into said external connection terminals];

data memory means capable of data readout; and

memory access means for reading data stored in said data memory means;

wherein said memory access means is rendered, by writing inhibition means, permanently incapable of data writing into said data memory means.

B

51. (Amended) A method for producing a printing head capable of being detachably mounted on a printer main body, comprising:

a step of preparing a head substrate including plural external connection terminals for externally entering various signals and a driving electric power; recording [execution] means for [executing a] recording [operation] according to the various signals [and the driving electric power externally entered into said external connection terminals]; data memory means capable of executing data writing and data readout; memory access means for executing the data writing into said data memory means in response to the various signals and the driving electric power [externally entered into said external connection terminals] and executing the data readout corresponding to the various signals; and writing inhibition means for permanently disabling the data writing into said data memory means by said memory access means;

a step of executing data writing into said data memory means by said memory access means; and

a writing inhibition step of permanently disabling, by said writing inhibition means after the data writing, the data writing into said data memory means by said memory access means.

55. (Amended) A method for producing a printing head capable of being detachably mounted on a printer main body, comprising:

B

a step of preparing a printing head including plural external connection terminals for externally entering various signals and a driving electric power; recording [execution] means for [executing a] recording [operation] according to the various signals [and the driving electric power externally entered into said external connection terminals]; data memory means capable of executing data writing and data readout; memory access means for executing the data writing into said data memory means in response to the various signals and the driving electric power [externally entered into said external connection terminals] and executing the data readout corresponding to the various signals; and writing inhibition means for permanently disabling the data writing into said data memory means by said memory access means;

a step of executing data writing into said data memory means by said memory access means; and

a writing inhibition step of permanently disabling, by said writing inhibition means after the data writing, the data writing into said data memory means by said memory access means.

58. (Amended) A method for producing the printing head according to [any of Claims 55 to 57] Claim 55, wherein:

said data writing step writes data of plural kinds in succession in said data memory means by said memory access means; and

B

said writing inhibition step individually disables data overwriting for the data of the plural kinds written in succession in said data memory means by said memory access means.

59. (Amended) A printing apparatus comprising:

a printing head according to [Claim 44] Claim 40;

input means for individually transmitting various signals respectively to a plurality of said external connection terminals of said printing head, thereby causing said recording execution means to execute a recording operation; and

memory readout means for transmitting various signals to said plural external connection terminal of said printing head, thereby causing said memory access means to execute the data readout.

NY_MAIN 324134 v 1

B